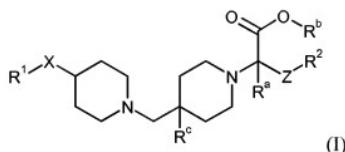


Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A compound of formula (I):



wherein:

R<sup>a</sup> and R<sup>b</sup> are, independently, hydrogen or C<sub>1-4</sub> alkyl or R<sup>a</sup> forms part of a ring as defined below;

R<sup>c</sup> is hydrogen or hydroxy;

X is CH<sub>2</sub>, C(O), O, S, S(O), S(O)<sub>2</sub> or NR<sup>3</sup>;

Z is CHR<sup>d</sup>(CH<sub>2</sub>)<sub>n</sub>;

n is 0 or 1;

R<sup>d</sup> is hydrogen, C<sub>1-4</sub> alkyl, hydroxy or C<sub>1-4</sub> alkoxy;

R<sup>1</sup> is hydrogen, C<sub>1-6</sub> alkyl, aryl or heterocyclyl;

R<sup>2</sup> is aryl or heterocyclyl;

wherein, unless stated otherwise, the foregoing aryl and heterocyclyl moieties are optionally substituted by: halogen, cyano, nitro, hydroxy, oxo, S(O)<sub>p</sub>R<sup>4</sup>, OC(O)NR<sup>5</sup>R<sup>6</sup>, NR<sup>7</sup>R<sup>8</sup>, NR<sup>9</sup>C(O)R<sup>10</sup>, NR<sup>11</sup>C(O)NR<sup>12</sup>R<sup>13</sup>, S(O)<sub>2</sub>NR<sup>14</sup>R<sup>15</sup>, NR<sup>16</sup>S(O)<sub>2</sub>R<sup>17</sup>, C(O)NR<sup>18</sup>R<sup>19</sup>, C(O)R<sup>20</sup>, CO<sub>2</sub>R<sup>21</sup>, NR<sup>22</sup>CO<sub>2</sub>R<sup>23</sup>, C<sub>1-6</sub> alkyl, CF<sub>3</sub>, C<sub>1-6</sub> alkoxy(C<sub>1-6</sub>)alkyl, C<sub>1-6</sub> alkoxy, OCF<sub>3</sub>, C<sub>1-6</sub> alkoxy(C<sub>1-6</sub>)alkoxy, C<sub>1-6</sub> alkylthio, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> alkynyl, C<sub>3-10</sub> cycloalkyl (itself optionally substituted by C<sub>1-4</sub> alkyl or oxo), methylenedioxy, difluoromethylenedioxy, phenyl, phenyl(C<sub>1-4</sub>)alkyl, phenoxy, phenylthio, phenyl(C<sub>1-4</sub>)alkoxy, heterocyclyl, heterocyclyl(C<sub>1-4</sub>)alkyl, heterocyclyloxy or heterocyclyl(C<sub>1-4</sub>)alkoxy; wherein any of the immediately foregoing phenyl and heterocyclyl

moieties are optionally substituted with halogen, hydroxy, nitro, S(O)<sub>q</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> below), cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> below), CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>;

or Z, R<sup>2</sup> and R<sup>a</sup> together with the carbon atom to which Z and R<sup>a</sup> are attached form a ring; p and q are, independently, 0, 1 or 2;

R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, R<sup>18</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup> and R<sup>22</sup> are, independently, hydrogen, C<sub>1-6</sub> alkyl (optionally substituted by halogen, hydroxy or C<sub>3-10</sub> cycloalkyl), CH<sub>2</sub>(C<sub>2-6</sub> alkenyl), phenyl (itself optionally substituted by halogen, hydroxy, nitro, NH<sub>2</sub>, NH(C<sub>1-4</sub> alkyl), N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> below), S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> below), cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> below), CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>) or heterocyclyl (itself optionally substituted by halogen, hydroxy, nitro, NH<sub>2</sub>, NH(C<sub>1-4</sub> alkyl), N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> below), S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> below), cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> below), CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>);

alternatively NR<sup>5</sup>R<sup>6</sup>, NR<sup>7</sup>R<sup>8</sup>, NR<sup>12</sup>R<sup>13</sup>, NR<sup>14</sup>R<sup>15</sup>, NR<sup>18</sup>R<sup>19</sup>, may, independently, form a 4-7 membered heterocyclic ring, azetidine, pyrrolidine, piperidine, azepine, morpholine or piperazine, the latter optionally substituted by C<sub>1-4</sub> alkyl on the distal nitrogen;

R<sup>4</sup>, R<sup>17</sup> and R<sup>23</sup> are, independently, C<sub>1-6</sub> alkyl (optionally substituted by halogen, hydroxy or C<sub>3-10</sub> cycloalkyl), CH<sub>2</sub>(C<sub>2-6</sub> alkenyl), phenyl (itself optionally substituted by halogen, hydroxy, nitro, NH<sub>2</sub>, NH(C<sub>1-4</sub> alkyl), N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as

described for R<sup>5</sup> and R<sup>6</sup> above), S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> above), cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> above), CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>) or heterocycl (itself optionally substituted by halogen, hydroxy, nitro, NH<sub>2</sub>, NH(C<sub>1-4</sub> alkyl), N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> above), S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> above), cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>5</sup> and R<sup>6</sup> above), CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>);

R<sup>3</sup> is hydrogen, C<sub>1-6</sub> alkyl or benzyl;

or an N-oxide thereof; or a pharmaceutically acceptable salt thereof; or a solvate thereof.

2. (Original) A compound of formula (I) as claimed in claim 1 wherein X is O.

3. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein the aryl and heterocycl moieties of R<sup>1</sup> and R<sup>2</sup> are, independently, optionally substituted by: halogen, cyano, nitro, hydroxy, oxo, S(O)<sub>p</sub>R<sup>4</sup>, OC(O)NR<sup>5</sup>R<sup>6</sup>, NR<sup>7</sup>R<sup>8</sup>, NR<sup>9</sup>C(O)R<sup>10</sup>, NR<sup>11</sup>C(O)NR<sup>12</sup>R<sup>13</sup>, S(O)<sub>2</sub>NR<sup>14</sup>R<sup>15</sup>, NR<sup>16</sup>S(O)<sub>2</sub>R<sup>17</sup>, C(O)NR<sup>18</sup>R<sup>19</sup>, C(O)R<sup>20</sup>, CO<sub>2</sub>R<sup>21</sup>, NR<sup>22</sup>CO<sub>2</sub>R<sup>23</sup>, C<sub>1-6</sub> alkyl, CF<sub>3</sub>, C<sub>1-6</sub> alkoxy(C<sub>1-6</sub> alkyl), C<sub>1-6</sub> alkoxy or OCF<sub>3</sub>; p is 0, 1 or 2; R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, R<sup>18</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup> and R<sup>22</sup> are, independently, hydrogen, C<sub>1-6</sub> alkyl (optionally substituted by halogen) or phenyl (itself optionally substituted by halogen, hydroxy, nitro, NH<sub>2</sub>, NH(C<sub>1-4</sub> alkyl), N(C<sub>1-4</sub> alkyl)<sub>2</sub>, S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub>, cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub>, CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>); and R<sup>4</sup>, R<sup>17</sup> and R<sup>23</sup> are, independently, C<sub>1-6</sub> alkyl (optionally substituted by halogen) or phenyl (itself optionally substituted by halogen, hydroxy, nitro, NH<sub>2</sub>, NH(C<sub>1-4</sub> alkyl), N(C<sub>1-4</sub> alkyl)<sub>2</sub>, S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub>

alkyl)<sub>2</sub>, cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub>, CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>).

4. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein R<sup>1</sup> is phenyl optionally substituted with halogen, cyano, C<sub>1-4</sub> alkyl or C<sub>1-4</sub> alkoxy.

5. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein R<sup>8</sup> is hydrogen.

6. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein R<sup>b</sup> is hydrogen or methyl.

7. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein R<sup>c</sup> is hydrogen.

8. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein R<sup>d</sup> is hydrogen, hydroxy or C<sub>1-4</sub> alkyl.

9. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein Z is CH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>, CHCH<sub>3</sub> or CHOH.

10. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein R<sup>2</sup> is phenyl or heterocyclyl optionally substituted by halogen, cyano, nitro, hydroxy, NR<sup>7</sup>R<sup>8</sup>, C<sub>1-6</sub> alkyl (optionally substituted with halogen), C<sub>1-6</sub> alkoxy (optionally substituted with halogen), S(O)<sub>p</sub>(C<sub>1-6</sub> alkyl), S(O)<sub>r</sub>CF<sub>3</sub> or S(O)<sub>2</sub>NR<sup>14</sup>R<sup>15</sup>; p and r are, independently, 0, 1 or 2; and R<sup>7</sup>, R<sup>8</sup>, R<sup>14</sup> and R<sup>15</sup> are, independently, hydrogen, C<sub>1-6</sub> alkyl (optionally substituted by halogen, hydroxy or C<sub>3-10</sub> cycloalkyl), CH<sub>2</sub>(C<sub>2-5</sub> alkenyl), phenyl (itself optionally substituted by halogen, hydroxy, nitro, NH<sub>2</sub>, NH(C<sub>1-4</sub> alkyl), N(C<sub>1-4</sub> alkyl)<sub>2</sub>, S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and these alkyl groups may join to form a ring as described for R<sup>7</sup> and R<sup>8</sup> below), cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub> (and

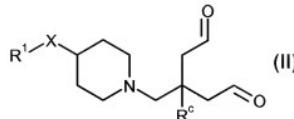
these alkyl groups may join to form a ring as described for R<sup>7</sup> and R<sup>8</sup> below), CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>) or heterocyclyl (itself optionally substituted by halogen, hydroxy, nitro, NH<sub>2</sub>, NH(C<sub>1-4</sub> alkyl), N(C<sub>1-4</sub> alkyl)<sub>2</sub>, S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub>(and these alkyl groups may join to form a ring as described for R<sup>7</sup> and R<sup>8</sup> below), cyano, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C(O)NH<sub>2</sub>, C(O)NH(C<sub>1-4</sub> alkyl), C(O)N(C<sub>1-4</sub> alkyl)<sub>2</sub>(and these alkyl groups may join to form a ring as described for R<sup>7</sup> and R<sup>8</sup> below), CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), NHC(O)(C<sub>1-4</sub> alkyl), NHS(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), C(O)(C<sub>1-4</sub> alkyl), CF<sub>3</sub> or OCF<sub>3</sub>); or alternatively NR<sup>7</sup>R<sup>8</sup> or NR<sup>14</sup>R<sup>15</sup> may, independently, form a 4-7 membered heterocyclic ring, azetidine, pyrrolidine, piperidine, azepine, morpholine or piperazine, the latter optionally substituted by C<sub>1-4</sub> alkyl on the distal nitrogen.

11. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein R<sup>2</sup> is phenyl or heterocyclyl optionally substituted by halogen, cyano, hydroxy, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> haloalkyl or C<sub>1-4</sub> alkoxy.

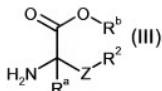
12. (Previously Presented) A compound of formula (I) as claimed in claim 1 wherein heterocyclyl is indolyl, imidazolyl, thieryl or pyridinyl.

13. (Original) A process for preparing a compound of formula (I) as claimed in claim 1 comprising:

- reacting a compound of formula (II):



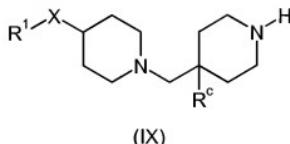
with a compound of formula (III):



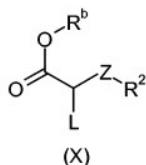
in the presence of  $\text{NaBH}(\text{OAc})_3$  or  $\text{NaBH}_3(\text{CN})$  in a suitable solvent at a suitable temperature;

b. when  $\text{R}'^{\text{b}}$  is not hydrogen, reacting a compound of formula (II) with a compound of formula (III), where  $\text{R}'^{\text{b}}$  is not hydrogen, in the presence of  $\text{NaBH}(\text{OAc})_3$  in the presence of a suitable base in a suitable solvent at a suitable temperature;

c. when  $\text{R}'^{\text{a}}$  represents H, reacting a compound of formula (IX):

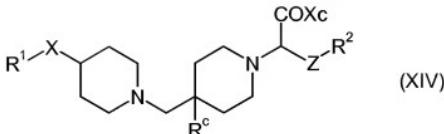


with a compound of formula (X):



wherin  $\text{L}$  is a suitable leaving group, in a suitable solvent, at a temperature in the range  $0^{\circ}\text{C}$  to  $30^{\circ}\text{C}$ , in the presence of a base; or,

d. when  $\text{R}'^{\text{a}}$  represents H, hydrolysing a compound of formula (XIV):



wherein  $\text{Xc}$  is a chiral auxiliary, in a suitable solvent, at a temperature between  $10^{\circ}\text{C}$  and reflux of the solvent.

14. (Original) A pharmaceutical composition which comprises a compound of the formula (I), or a pharmaceutically acceptable salt thereof or solvate thereof as claimed in claim 1, and a pharmaceutically acceptable adjuvant, diluent or carrier.

15-16. (Cancelled)

17. (Original) A method of treating a chemokine mediated disease state in a mammal suffering from, or at risk of, said disease, which comprises administering to a mammal in need of such treatment a therapeutically effective amount of a compound of formula (I), or a pharmaceutically acceptable salt thereof or solvate thereof as claimed in claim 1.

18. (Previously Presented) A compound of formula (I) as claimed in claim 2 wherein R<sup>1</sup> is phenyl optionally substituted with halogen, cyano, C<sub>1-4</sub> alkyl or C<sub>1-4</sub> alkoxy.

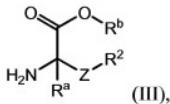
19. (Previously Presented) A compound of formula (I) as claimed in claim 2 wherein R<sup>a</sup> is hydrogen.

20. (Previously Presented) A compound of formula (I) as claimed in claim 2 wherein R<sup>b</sup> is hydrogen or methyl.

21. (Previously Presented) A compound of formula (I) as claimed in claim 2 wherein R<sup>c</sup> is hydrogen.

22. (Previously Presented) A compound of formula (I) as claimed in claim 2 wherein R<sup>d</sup> is hydrogen, hydroxy or C<sub>1-4</sub> alkyl.

23. (New) A compound of formula (III):



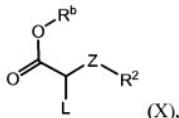
wherein

Z is  $\text{CHR}^d(\text{CH}_2)_n$ ; or Z,  $R^2$  and  $R^a$ , together with the carbon atom to which Z and  $R^a$  are attached, form a ring;

$R^2$  is aryl or heterocyclyl; or  $R^2$ , Z, and  $R^a$ , together with the carbon atom to which Z and  $R^a$  are attached, form a ring; and

$R^a$  and  $R^b$  are, independently, hydrogen or  $C_{1-4}$  alkyl; or  $R^a$ , Z, and  $R^2$ , together with the carbon atom to which Z and  $R^a$  are attached, form a ring.

24. (New) A compound of formula (X):



wherein

Z is  $\text{CHR}^d(\text{CH}_2)_n$ ;

L is a leaving group;

$R^2$  is aryl or heterocyclyl; and

$R^b$  is hydrogen or  $C_{1-4}$  alkyl.

25. (New) The compound of claim 24, wherein L is bromide, triflate, or methanesulfonate.